



THE NORTHLAND SKY WATCHER

*For National Weather Service weather watchers of
northeastern Minnesota and northwestern Wisconsin*

A Look at a Century's Major Weather Stories for the Northland

It's been said, "If you don't like our weather, just wait a few minutes; it'll change", and a look at the century's major weather stories seems to make that statement more true. Our weather ranges from severe drought to severe flooding and unbearably hot to record-setting cold. Here is a look at a few of the most memorable weather events to hit the Northland in the 20th Century. Maybe you remember some of these.

Mataafa Storm, November 27-28, 1905

This N'oreaster, named for the ship that it beached in the Duluth Harbor, had severe gales of 42 mph that were sustained for 29 straight hours and 65 mph for 13 continuous hours, according to H. W. Richardson, meteorologist for the U.S. Weather Bureau at the time. The storm dumped 7 inches of snow and the strong winds created considerable drifting. A huge drop in temperature occurred as the storm passed and winds switched from northeast to north. The temperature dropped from 31E at noon on November 27th to -10E by midnight that night. The Mataafa was beached on the afternoon of the 27th and later broke in two. By the time Coast Guard rescue crews arrived, the ship was covered in frozen spray. While nine crew members perished, fourteen were saved. Nine other ships were either stranded or wrecked in the storm.

Drought, Summer of '18

The worst weather-related disaster to strike Minnesota this century was neither tornado, flood, nor blizzard. The warm and excessively dry Summer of 1918 set the stage for what was to be referred to as a hurricane of fire- the forest and brush fires that struck northeastern Minnesota on October 12th. Much of the region saw very little rain that summer and into early fall. In fact, Duluth recorded it's 3rd driest summer with only 4.39 inches of rain for June, July, and August. The morning of October 12 in 1918 dawned clear and unusually warm for residents of northeastern Minnesota. Gusty west winds of 20 to 30

mph started to develop and temperatures rose into the middle and upper 70's. Sparks from passing railroad trains ignited the tinder dry brush and vegetation along the tracks. Winds of nearly hurricane strength fanned the flames into large fires that raced across northeastern Minnesota.



In This Issue:

| | |
|----------------------|-----|
| A Century of Weather | 1-3 |
| La Niña | 4 |
| New Names and Faces | 4 |
| Ask the Experts | 5 |
| Y2K Ready | 5 |

See "Northland Weather", next page

"Northland Weather", continued

By the time the fires had burned themselves out, 1500 square miles were blackened, ten northeastern Minnesota towns were totally destroyed, 453 people were killed, and 85 people were seriously burned. Cities that were destroyed included Cloquet, Kettle River, and Moose Lake. The city of Duluth sustained heavy damage. Large sections of Carlton, Pine and St. Louis counties were burned with serious damage to Aitkin, Itasca, Cass, Crow Wing, and Wadena counties.

Minnesota North Woods Tornado Outbreak, August 6, 1969

On August 6, 1969 a major tornado outbreak occurred in northern Minnesota that left 15 dead and 106 injured. The first tornado touched down in Cass County, west of Pine River and moved to near Backus. At 3:48 pm the largest tornado of the outbreak set down near Stewart Lake in the far northwestern corner of Crow Wing County and moved northeast, passing north of Outing and lifted south of Hill City. Eleven deaths occurred on the shores of Roosevelt Lake near Outing in Cass County and one person died at Reservoir Lake, between Outing and Hill City. Forty children staying at a camp on Roosevelt Lake were injured. Many farms and cabins were destroyed by this massive tornado. It was on the ground for 33 miles and was 800 yards wide.

From 4:25 pm and 5:50 pm more tornadoes moved across Aitkin, St. Louis and Lake counties. One person was killed near Jacobson in Aitkin County and 2 deaths occurred as a tornado moved from near Boulder Lake in St. Louis County to near Two Harbors. The twisters caused a total damage of \$4.8 million.

Blizzard of January 10 - 12 1975

This storm was billed as Minnesota's "Storm of the Century". For three days, January 10-12, snow, rain, and freezing rain fell and winds gusted from 45 to 80 mph. Eight inches of snow fell in Duluth and there were many periods of rain, freezing rain, and sleet. 23.5 inches of snow fell at International Falls. The snow and wind were accompanied by falling temperatures. Duluth's high temperature dropped from 33E on the 11th to -3E on the 12th.

Wisconsin stayed on the warm side of the low, but received plenty of rain and the strong winds. The Danbury station measured a record 24-hour rainfall of 1.20".

Halloween Snow Storm, October 31 - November 2, 1991

A major early-season snowstorm struck northeastern Minnesota and northwestern Wisconsin from late on Halloween, 1991 into the early morning of November 2. The storm dumped 15 to 36 inches of snow, with the highest totals falling along the Wisconsin-Minnesota border. Snowfall rates occasionally ranged from 1 to 2 inches an hour. Strong northwest winds created 6 to 10 foot drifts. The storm closed schools, businesses, and transportation systems- some for several days.

Continued on next page



Record Cold, January 31 - February 4, 1996

An Arctic outbreak brought record-setting cold to the Northland in 1996. From the period January 31 to February 4, 1996 daytime *high* temperatures were in the teens and 20s *below* zero and lows ranged from the -30's to the -50's. The coldest temperature ever in Minnesota was recorded at Tower (-60E) the morning of February 2. (This is also the coldest temperature ever recorded east of the Mississippi River.) A new cold temperature record was also established in Wisconsin when the temperature dipped to -55E in Couderay on February 2 and 4. The temperature finally rose above zero in Minnesota on February 4, when highs reached the single digits above zero. Wisconsinites had to wait one more day for their warm-up.

New Snowfall Record for Wisconsin, 1996-97

It seemed to just keep snowing in Hurley, Wisconsin during the winter of '96/'97- enough to set a new state seasonal snowfall record. The new Hurley record is 277.7 inches. The Lake Superior "snow machine" contributed to most of Hurley's snow that season. The first snowstorm hit November 9 and continued through the 11th. When it was over, 32" of snow had been deposited. The table below lists the major snowfalls for Hurley that season.

Snowfall in Hurley, WI for the 1996-97 Season

| Dates | Total Snowfall |
|----------------|-----------------------|
| November 9-11 | 32" |
| December 18-19 | 27" |
| January 4-6 | 23" |
| January 10-12 | 26" |
| January 25 | 17.5" |
| March 13-14 | 20.5" |
| May 11-12 | 6" |

-Sam Standfield, hydrometeorological technician and Carol Christenson

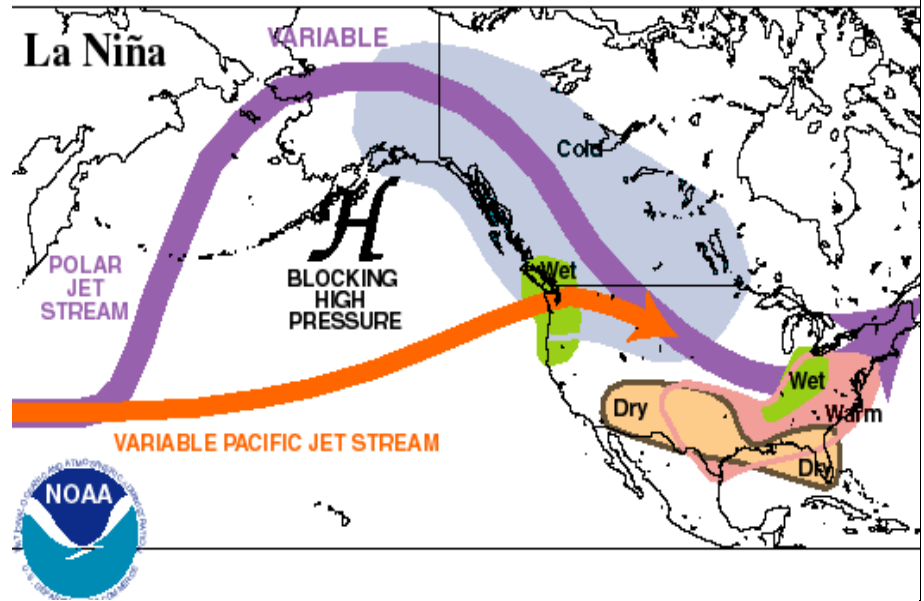


La Niña Still Going Strong

After a wet summer in the Northland, October and November ended with below normal precipitation. One of the main factors was La Niña. La Niña is a cooling of the equatorial Pacific from the South American coast to near the international dateline.

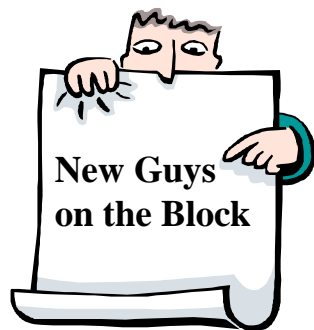
This year, La Niña is expected to maintain itself through early spring. Sea surface temperatures in the South Pacific are $-.5^{\circ}\text{C}$ to -1.5°C . What this means for us this winter, according to the NWS's Climate Prediction Center, is that the Northland will have near normal temperatures with above normal precipitation. The past November had near-record dryness and December so far is very dry and warm. But, we are just starting our climatological winter, so don't pack away those snow shovels and snowmobiles yet.

- Greg Frosig, forecaster



Typical January-March weather anomalies and atmospheric circulations during moderate to strong La Niña episodes. (Graphic from the NWS Climate Prediction Center.)

Two new electronics personnel are on our roster. William "Chris" Wallan arrived here in October and filled an electronics technician position. Chris is from the Pacific Northwest and was raised in Washington, Oregon, and California. Before coming here, Chris worked for the Air Force in Sacramento, CA. Chris is a veteran of the Army (1971-74) and was a civilian volunteer for the Army during Desert Shield and Desert Storm. Chris moved here with his son, a high-schooler. Chris enjoys reading, fishing and browsing the Internet.

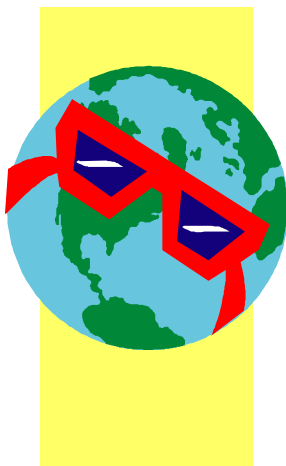


Don Price will join our office team as the Electronic Systems Analyst in January. Don will come to us from the Pendleton, OR NWS office. As an electronics technician in the Air Force, he spent time in the Philippines and at Altus AFB, OK. After leaving the Air Force, he joined the Weather Service at Redwood City, CA and from there went to Pendleton. Don will move here with his wife, Nenita, and his three children, Mark, David, and Kimberly. Don is working toward a BA in computer science. He enjoys hunting, fishing, and computer programming.

Ask the Experts

Q I heard on the news the other night that November was the second warmest on record. Are these unusually warm November temperatures the result of global warming?

A As you mentioned, November was unusually warm. Whether this particular temperature anomaly is a direct result of "global warming", however, is not clear. The science of climate change is complex. Scientists in this field are quite certain that carbon dioxide (and other greenhouse gases) concentrations are on the rise. These greenhouse gases do absorb and re-emit longwave radiation which would lead to more energy being held in the lowest levels of the atmosphere. Researchers recently discovered that the average temperature across the earth's surface has increased on the order of 0.6 to 1.2E F since the late 19th century which would *seem* to be indicative of global warming. What's unclear, however, is whether this rise might be a function of some natural climate change. Also at issue is the accuracy of the climate data. Considerable *noise* has been introduced to the climate record through moving sites from one location to another, through changes in observing systems, and from the timing of observations.



In addition, a certain amount of year-to-year variability is normal. For instance, in contrast to this year's warmth, some of Duluth's coldest Novembers were recorded in the recent past. In fact, the fourth and fifth coldest November's occurred in 1995 and 1996.

So, in answer to your question, the jury is still out on the issue of global warming, though research continues. One thing that is certain, however, is that one unusually warm month does not adequately define a trend.

- Norv Larson, Science and Operations Officer

REMI NDER

Snowfall Observers who take snow core samples:



Please begin sending or calling in the Monday water content measurements of the snow depths beginning the first Monday in February. Reports can be called or transmitted to the NWS anytime on Monday, but definitely no later than 10 am Tuesday. Snow depth water equivalents are a crucial part in forecasting the spring snowmelt flood potential of rivers. A special thank you to everyone who participates in this program. Anyone who is interested in taking snow core measurements should contact the NWS.



NWS is Ready for Y2K!

The NWS has been planning for Y2K since 1996 and as a result, we are confident there will be no interruption of our services to our customers. The systems which collect weather data and generate and disseminate weather forecasts, watches and warnings have all been tested and are Y2K-ready.

Our office is equipped with a HAM radio station, cell phones, and emergency power generators. A HAM radio operator will be stationed at our office New Years Eve in case of a major communications failure.

So rest assured that when we ring in the new millenium, the National Weather Service will be ready to go.

- Ed Shimon, Y2K program manager

The *Northland Sky Watcher* is a quarterly newsletter published by the National Weather Service Office in Duluth, MN for our weather spotters and observers. We welcome your questions and comments. We can be reached by:

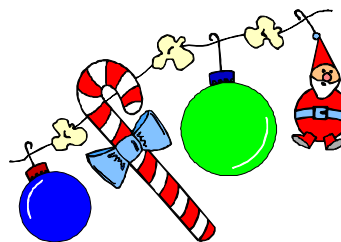
Phone: (218) 729-6697
((218) 283-4615 dialing from
International Falls

mail: 5027 Miller Trunk Hwy
Duluth, MN 55811

or e-mail to carol.christenson@noaa.gov

Visit our homepage at
www.crh.noaa.gov/dlh/duluth.htm

Editor.....Carol Christenson
Assistant Editor.....Ed Flenz



**Happy Holidays from
the staff of the Duluth
National Weather
Service!**



NATIONAL WEATHER SERVICE- NOAA
5027 MILLER TRUNK HIGHWAY
DULUTH MN 55811-1442

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300